135879

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

IN THE MATTER OF AUTO-ION	
Auto Ion Respondents 74 Mills Street Kalamazoo, Michigan	Administrative Order by Consent
	Re: Remedial Investigation and Feasibility Study
Proceeding under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §9606(a))	U.S. EPA Docket No. V-W- '86 -C- 07

I.

JURISDICTION

This Administrative Order By Consent (Consent Order) is issued pursuant to the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. §9606(a), and delegated to the Administrator of the United States Environmental Protection Agency (U.S. EPA) on August 14, 1981, by Executive Order 12316, 46 Fed. Reg. 42237, and further delegated to the Assistant Administrator for Solid Waste and Emergency Response and the Regional Administrators by U.S. EPA Delegation Nos. 14-14 and 14-14-A, the latter of which was signed on April 16, 1984. Further delegation to the Region V Division Director is authorized by statute. Respondents agree to undertake all actions required by the terms and conditions of this Consent Order. Respondents consent to and will not contest U.S. EPA jurisdiction regarding this Consent Order and any future judicial or administrative action taken by U.S. EPA to enforce this Consent Order.

Without admitting to or otherwise conceding the validity or truth of the factual allegations recited herein, Respondents hereby agree to the entry of this Consent Order pursuant to the provisions of CERCLA Section 106. By agreeing to this Consent Order, Respondents do not concede the correctness of any legal conclusion expressed herein, except for an action by U.S. EPA to enforce this Consent Order. Respondents consent to jurisdiction of U.S. EPA to issue this Consent Order. Respondents will not challenge or contest the entry of this Consent Order or any terms herein. No use may be made of any recitation or legal conclusion herein in any other legal proceeding to which Respondents or any of them are parties. Neither this Consent Order nor its terms shall constitute evidence of, nor be construed in any way, as an admission of any fact, liability, or fault by Respondents except within an action to enforce this Consent Order.

II.

PARTIES BOUND

A. The following persons, as defined in Section 101(21) of CERCLA, 42 U.S.C. §9601(21), are parties to this Consent Order:

(1) U.S. EPA through the Regional Administrator of U.S. EPA Region V, and the following persons who shall hereinafter be referred to as "Respondents":

(2) Amerace Corporation;

(3) Brunswick Corporation,

(4) Buckeye Products Corporation,

(5) Clark Equipment Company,

(6) Contractors United Inc.,

(7) Corning Glass Works,

(8) Dana Corporation

(9) Faultless Caster Company,

(10) General Motors Corporation,

(11) Gilbert Plating Company,

(12) Hoover Universal, Inc.,

(13) Jervis a/k/a Harman Auto Company Inc.,

(14) Johnson Controls, Inc.,

(15) K.T.S. Industries Inc.,

(16) Kawneer Company,

(17) Muskegon Piston Ring Company,

(18) Shakespeare Company,

(19) Sheller-Globe Corporation,

(20) Stanadyne, Inc.,

(21) Sunstrand Heat Transfer, Inc.,

(22) United Technologies Automotive,

(23) Whirlpool Corporation, and

(24) Wickes Manufacturing Company (for Angle Steel only).

B. This Consent Order shall apply to and be binding upon U.S. EPA and Respondents, Respondents' officers, directors, principals, employees, agents, successors, and assignees, and upon all persons, contractors, or consultants acting for U.S. EPA and/or Respondents with respect to this matter.

C. The undersigned representative for each Respondent certifies that he or she is fully authorized by the person or persons whom he or she represents to enter into the terms and conditions of this Consent Order and to execute and legally bind that person or those persons to it.

D. No change in ownership, corporate, or partnership status will in any way alter the status of Respondents under this Consent Order. Despite any such changes in status, Respondents' liability will remain unaffected and Respondents will remain responsible for carrying out all activities required by this Consent Order.

E. Respondents shall provide a copy of this Consent Order to each contractor selected to perform the activities required by this Consent Order and shall instruct each such contractor to provide a copy thereof to each subcontractor retained.

F. Nothing contained in this Consent Order shall affect any right, claim or cause of action that any party hereto has against persons not party to this Consent Order. The terms of this Consent Order shall not affect the rights of any Respondent either (1) to proceed against any other person or entity for contribution or (2) to prosecute any other claim that Respondents or any of them may have.

III.

STATEMENT OF PURPOSE

In entering into this Consent Order, the mutual objectives of U.S. EPA and Respondents are: (1) to determine fully the nature and extent of the threat, if any, to the public health or welfare or the environment caused by the release or threatened release of hazardous substances, pollutants or contaminants from the Auto Ion Site (Remedial Investigation) and (2) to

evaluate alternatives for the appropriate extent of remedial action to prevent or mitigate the migration or the release or threatened release of hazardous substances, pollutants, or contaminants from the Auto Ion Site (Feasibility Study).

The activities conducted pursuant to this Consent Order are subject to approval by U.S. EPA and shall be consistent with the National Contingency Plan, 40 CFR Part 300.68 (a)-(k) ((47 Federal Register 31180 (July 16, 1982), revised at 50 Federal Register 47912 (November 20, 1985)).

IV.

DETERMINATIONS & FINDINGS

Based upon information available on the effective date of this Consent Order, the Regional Administrator of U.S. EPA makes the following findings.

1. The Auto Ion Facility is located in the City of Kalamazoo in the south-east quarter of the northeast quarter of the southwest quarter of Section 14, Kalamazoo Township (T25, R/11/W), Kalamazoo County, Michigan. The Facility is located in a predominantly industrial area, occupying approximately 1/2 acre and is bounded on its southern side by the Kalamazoo River. There is a park on the southside of the river across from the Facility. Said site constitutes a Facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. §9601(9), and shall hereinafter be referred to as the "Facility" or "Site".

2. On-site samples were collected by the Michigan Department of Natural Resources (MDNR), prior to the surface cleanup performed by certain

Respondents, in January 1982. Results showed high levels of the following constituents present in standing water and sludges.

	Highest mg/l
Cadmium	21,000
Chromium	120,000
Hexavalent Chromium	1,300
Cyanide	48,000
Copper	150,000
Nickel	42,000
Lead	15,000
Zinc	33,000

These constituents are hazardous substances as defined in Section 101(14) of CERCLA, 42 U.S.C. §9601(14).

3. The U.S. EPA issued a Unilateral Administrative Order to certain Respondents on June 19, 1984, U.S. EPA Docket No. V-W-84-C-010. Pursuant to Section 106(a) of CERCLA, 42 U.S.C. §9606(a), this Unilateral Administrative Order required certain Respondents to undertake emergency removal activities at the Site to abate an imminent and substantial endangerment to public health and welfare and the environment, arising from the improper storage and disposal of hazardous substances. Pursuant thereto, certain Respondents voluntarily arranged by contract, agreement or otherwise, for treatment or disposal or for the transportation for treatment or disposal of hazardous substances found to be at the Facility within the meaning of Section 107(a)(3) of CERCLA, 42 U.S.C. §9607(a)(3), including the following actions:

a) Secured Site and installed warning signs,

b) Removed all visible hazardous wastes from the Facility including liquids, sludges, drums, tanks and lagoons, and

c) Analyzed the structural integrity of the on-site building and took corrective actions to stabilize the structure.

4. The geology and hydrology underlying the Facility is not known due to the lack of available information. Municipal and industrial groundwater use is common to populated areas around the Facility. Human exposure, if any, to hazardous substances previously stored at the Facility would be via ingestion of drinking water from potentially contaminated groundwater supplies. These substances identified in Section IV(2), can be toxic or cause dangerous side effects if ingested.

5. There have been numerous documented releases throughout the Facility's operating period, including:

a) 1968 sampling by MDNR indicated a release to the storm-water chamber adjacent to the Kalamazoo River,

b) July, 1969, on-site samples, by MDNR, of a leaking tank truck indicated hydrogen sulfide with 240,000 mg/l sodium hydroxide - this discharge was directly to surface soils,

c) May and August, 1971, MDNR investigations of Kalamazoo River sludge, adjacent to the Facility, indicates the Auto-Ion Facility as the source of contamination, and

d) April and July, 1972, on-site MDNR investigations revealed discharges and spills occurring at the Facility.

6. Based on results of U.S. EPA and MDNR investigations and taking into account such factors as populations at risk, the potential of hazardous substances being present, the potential for contamination of drinking water supplies and the destruction of sensitive ecosystems, the Facility was placed on the National Priorities List ("NPL") pursuant to Section 105 of CERCLA, 42 U.S.C. §9605 (See placement in NPL Group 12).

7. James J. Rooney is the former owner and operator of Auto-Ion located at 74 Mills Street, Kalamazoo, Michigan. Between the years 1963 and 1973, hazardous substances were deposited, stored, disposed of, placed or otherwise located at this site. Mr. Rooney was an owner and operator of the Facility within the meaning of Section 101(20) of CERCLA, 42 U.S.C. §9601(20), and is a responsible person pursuant to Section 107 of CERCLA, 42 U.S.C. §9607.

8. On the basis of information available to U.S. EPA, each of the remaining Respondents generated hazardous substances which were disposed of at the Site, and each such Respondent is a responsible person pursuant to Section 107 of CERCLA, 42 U.S.C. §9607.

9. The actions required by this Consent Order, if properly performed, are consistent with the National Contingency Plan and are reasonable and necessary to protect the public health and welfare and the environment.

V.

CONCLUSIONS OF LAW

A. The Auto Ion Site located in Kalamazoo, Michigan, is a "Facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. §9601(9).

B. The wastes and constituents thereof deposited, stored, disposed of, transported to, placed or located at the Site between the years 1963 and 1973, including, but not limited to, cyanide, hexavalent chromium, cadmium, chromium, copper, nickel, lead, and zinc are "Hazardous

Substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. §9601(14).

C. Respondents are "persons" as defined in Section 101(21) of CERCLA, 42 U.S.C. §9601(21).

D. The past, present and/or potential migration of hazardous substances from the Site constitutes an actual and/or threatened "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. §9601(22).

E. Respondents are responsible and liable parties pursuant to Section 107(a) of CERCLA, 42 U.S.C. §9607(a).

VI.

WORK TO BE PERFORMED

A. All work to be performed pursuant to this Consent Order shall be conducted under the direction and field supervision of a qualified professional engineer or certified geologist with expertise in hazardous waste site investigation and clean-up. Prior to the initiation of Site work, Respondents shall notify U.S. EPA in writing regarding the name, title, and qualifications of the proposed engineer or geologist, and of any consultants, contractors and/or subcontractors to be used in carrying out the terms of this Consent Order. Any such engineer, geologist, contractor, or subcontractor shall be subject to approval by U.S. EPA, which shall not be unreasonably withheld or delayed. Notification of such approval will be transmitted by U.S. EPA in writing.

B. Attachment I to this Consent Order provides a Scope of Work (SOW) for the completion of Remedial Investigation and Feasibility Study (RI/FS) which is incorporated into and made a part of this Consent Order. Based on the foregoing, it is hereby AGREED TO AND ORDERED that the following work shall be performed:

1. Within forty-five (45) working days of the effective date of this Consent Order, as defined in Section XXIII, Respondents shall submit to U.S. EPA a draft work plan for a complete Remedial Investigation and Feasibility Study (RI/FS Work Plan). This plan shall be developed in accordance with the SOW and U.S. EPA Remedial Investigation and Feasibility Study guidance documents which have been provided to Respondents by U.S. EPA. As described in this guidance, the RI/FS Work Plan shall include, but not be limited to, (1) provisions for an endangerment assessment; (2) a site sampling plan; (3) a health and safety plan; (4) a plan for satisfaction of permitting requirements; (5) a description of chain of custody procedures; and (6) a quality assurance project plan (QAPP) which is consistent with guidance documents provided by U.S. EPA. The QAPP shall include the following components:

    1. Project description,
    2. Project Quality Assurance (QA) organization and responsibility,
    3. QA objectives for measurement data in terms of precision, accuracy, completeness, representativeness, and comparibility by parameter,
    4. Sampling procedures,
    5. Sample custody,
    6. Calibration procedures and frequency,
    7. Analytical procedures and methods,
    8. Data reduction, validation and reporting,
    9. Internal quality control and checks,
    10. Performance and system audits and frequency,
    11. Preventive maintenance procedures and frequency,

12. Specific routine procedures to be used to assess data precision, accuracy and completeness of specific measurement parameters involved,
13. Corrective action, and
14. Quality assurance reports to management.

The RI/FS Work Plan shall contain a schedule for implementation of the tasks to be completed. The initial draft RI/FS Work Plan shall be subject to review, modification or approval by U.S. EPA within thirty (30) working days of receipt. In the event that U.S. EPA cannot review the RI/FS Work Plan within the specified schedule, Respondents will be notified in writing of the delay and the expected duration of the delay. Respondents' schedules will be modified to reflect such delay. A final Work Plan reflecting U.S. EPA modifications shall be submitted by Respondents to the U.S. EPA for review and approval within (15) fifteen working days of receipt of U.S. EPA comments on the initial draft Work Plan.

2. After receipt of the final RI/FS Work Plan by U.S. EPA, U.S. EPA shall notify Respondents in writing of U.S. EPA's approval or disapproval of the final RI/FS Work Plan or any part thereof within twenty (20) working days. In the event that U.S. EPA cannot provide Work Plan review within the specified schedule, Respondents will be notified in writing of the delay and the expected duration of the delay. Respondents' schedules will be modified to reflect such delay. In the event U.S. EPA approves the final Work Plan it becomes the approved RI/FS Work Plan including any addenda specified by U.S. EPA and agreed upon by the parties. The RI/FS Work Plan shall then be deemed an enforceable part of this Consent Order. In the event of any disapproval, U.S. EPA shall indicate in writing the deficiencies of the RI/FS Work Plan and recommend modifications and/or additions.

3. Within fifteen (15) working days of receipt of U.S. EPA notification of RI/FS Work Plan disapproval, Respondents shall amend and submit to U.S. EPA a revised final RI/FS Work Plan. Subsequent U.S. EPA disapproval of the RI/FS Work Plan shall be deemed non-compliance by Respondents with the terms of this Consent Order and grounds for termination and/or enforcement action of this Consent Order by U.S. EPA. U.S. EPA's approval or disapproval shall not be unreasonably withheld. In the event of such termination U.S. EPA retains all rights provided by federal and state laws and regulations, including, but not limited to, the right to conduct a complete RI/FS pursuant to its authority under CERCLA.

4. Respondents shall implement the tasks detailed in the RI/FS Work Plan approved by U.S. EPA in accordance with the schedule contained in the approved RI/FS Work Plan.

5. Upon approval of the RI/FS Work Plan by U.S. EPA, Respondents shall commence performance of the work detailed in the RI/FS Work Plan. Respondents may not commence work on the RI/FS prior to U.S. EPA approval of the Work Plan.

6. Respondents shall provide preliminary and final reports to U.S. EPA according to the schedule contained in the approved RI/FS Work Plan.

7. Within thirty (30) working days of receipt by U.S. EPA of the preliminary and final RI/FS reports, U.S. EPA shall notify Respondents in writing of

U.S. EPA's approval or disapproval of these reports or any part thereof. In the event that U.S. EPA cannot provide RI/FS report review within the specified schedule, Respondents will be notified in writing of the delay and the expected duration of the delay. Respondents' schedules will be modified to reflect such delay. In the event of any disapproval, U.S. EPA shall indicate in writing the deficiencies of the reports and recommend modifications and/or additions.

8. Within fifteen (15) working days of receipt of U.S. EPA notification of preliminary or final report disapproval, or such longer period as is established by U.S. EPA, Respondents shall amend and submit to U.S. EPA such revised reports. In the event of disapproval of any such revised report, U.S. EPA retains the right to amend such reports, to perform additional studies, and to conduct a complete Remedial Investigation and Feasibility Study pursuant to its authority under CERCLA.

9. Documents, including reports, approvals, disapprovals, and other correspondence, to be submitted pursuant to this Consent Order, shall be sent by certified mail to the following addressees or to such other addressees as Respondents or U.S. EPA hereafter may designate in writing:

(1) Documents to be submitted to U.S. EPA should be sent to:

5 copies:
Remedial Project Manager - Auto Ion Site
U.S. Environmental Protection Agency
Hazardous Waste Enforcement Branch
CERCLA Enforcement Section (5HE-12)
230 South Dearborn Street
Chicago, Illinois 60604

(2) Documents to be submitted to Respondents should be sent to:

A. Auto-Ion Steering Committee
c/o Sidney Margolis, Esq.
Winston & Strawn
Suite 5000
One First National Plaza
Chicago, Illinois 60603

B. Auto-Ion Steering Committee
c/o Sheila C. Marsh, Esq.
Brunswick Corporation
One Brunswick Plaza
Skokie, Illinois 60077

C. Auto-Ion Steering Committee
c/o Richard T. Sargeant, Esq.
Eastman & Smith
800 United Savings Building
Toledo, Ohio 43604

VII.

PROGRESS REPORTS

Respondents shall provide monthly written progress reports to U.S. EPA as well as the task reports called for in the RI/FS Work Plan. At a minimum these progress reports shall: (1) describe and, where appropriate, document with photographs those actions which have been taken during the previous month and describe those actions which are scheduled to be taken during the next month toward achieving compliance with this Consent Order; (2) describe those problems which have been encountered during the previous month and those problems which are anticipated during the next month; (3) identify and, where appropriate, document with photographs those tasks which are anticipated to be completed during the next month; (4) include the results of all sampling done and tests performed; (5) include all other data generated or received by Respondents or their contactors or consultants;

(6) include percentage of completion and schedule status; and (7) identify any changes in personnel. These reports are to be submitted to U.S. EPA on the tenth (10) working day of each month following the effective date of this Consent Order. Any questions posed by U.S. EPA concerning such monthly progress reports shall be answered by Respondents within fifteen (15) working days of the date of the transmittal of such questions.

VIII.

ADDITIONAL WORK

U.S. EPA may determine that work, additional to that described in the approved RI/FS work plan, including additional remedial investigatory studies and/or engineering designs or evaluations, is necessary as part of the work required by this Consent Order. Requirements for additional work shall be reasonable and shall be limited to matters consistent with the purpose of this Consent Order. Should Respondents elect not to perform such work or should U.S. EPA determine that such work should not be performed by Respondents, U.S. EPA reserves the right to perform any such additional task and seek reimbursement from Respondents.

IX.

PROJECT COORDINATORS

A. On or before the effective date of this Consent Order, U.S. EPA and Respondents shall each designate a Project Coordinator and shall notify other parties in writing of the name, address, and telephone number of the Project Coordinator each party has selected. Each Project Coordinator shall be responsible for overseeing the implementation of this Consent Order. The U.S. EPA Project Coordinator will be U.S. EPA's

designated representative at the Site. To the maximum extent possible, except as specifically provided in this Consent Order, technical staff communications between Respondents, and U.S. EPA shall be directed through the Project Coordinators. In addition, all documents, reports, approvals, disapprovals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Consent Order, shall be sent certified mail to the Project Coordinators. Each Project Coordinator shall be responsible for assuring that all communications from the other Project Coordinators are properly disseminated and processed.

B. U.S. EPA and Respondents each shall have the right to change respective Project Coordinators. Such a change shall be accomplished by notifying the other parties by certified mail at least five (5) working days prior to the change.

C. U.S. EPA's designated Project Coordinator shall have the authority vested in an On-Scene Coordinator by the National Contingency Plan, 40 C.F.R. Part 300 et seq., 47 Federal Register 31180, July 16, 1982, revised at 50 Federal Register 47912, November 20, 1985. This includes the authority to halt, change, conduct, or direct any work required by this Consent Order and/or any other response actions when, in the opinion of U.S. EPA's Project Coordinator, conditions may present an imminent and substantial endangerment to public health or welfare or the environment. In the event that U.S. EPA's Project Coordinator does require cessation of the work required by the Consent Order, he or she shall retain the

authority to require Respondents to modify the performance of the work in such a fashion as to avoid or mitigate any potential imminent and substantial endangerment which U.S. EPA's Project Coordinator believes may exist.

D. To the greatest extent possible, Respondents' Project Coordinator shall be physically present on Site during all hours of work. In the event that Respondents' Project Coordinator is unable to be physically present on Site for any period of time, he or she shall designate a substitute Project Coordinator who shall remain on Site during all such periods of the Project Coordinator's absence. Absence of Respondents' Project Co-ordinator from the Site shall not be cause for the stoppage of work.

E. The Project Coordinators for this project are as follows:

1. U.S. EPA Project Coordinator:

Frank Rollins, Remedial Project Manager
U.S. Environmental Protection Agency - Region V
Hazardous Waste Enforcement Branch
CERCLA Enforcement Section (5HE-12)
230 South Dearborn Street
Chicago, Illinois 60604

2. Respondents' Project Coordinators:

Richard G. Bergreen
Daniel J. Banfzek
Woodward-Clyde Consultants
11 E. Adams Street
Suite 1500
Chicago, Illinois 60603

X.

COMPLIANCE WITH ALL APPLICABLE LAWS

All work undertaken by Respondents pursuant to this Consent Order shall be performed in compliance with all applicable federal, state, and local laws and regulations. Respondents shall be responsible for identifying and obtaining all state and local permits which are necessary for the performance of the work required by this Consent Order.

Delays in the permitting process which are not attributable to the Respondents and which cannot be overcome by Respondents' exercise of due diligence shall constitute a force majeure event which shall postpone Respondents' performance of the requirements of this Consent Order only to the extent of the delay occasioned by such delays in the permitting process.

XI.

SITE ACCESS

A. Respondents shall allow access to the site by U.S. EPA, and/or their authorized representatives whenever work is being performed, or at any other reasonable times.

B. Nothing herein shall be construed as restricting the inspection or access authority of U.S. EPA under federal or state law or regulation.

XII.

SAMPLING, ACCESS, AND DATA/DOCUMENT AVAILABILITY

A. Respondents shall make the results of all sampling, tests or other data generated by the Respondents, or on behalf of Respondents related to the implementation of this Consent Order, available to U.S. EPA, and shall submit these results in the monthly progress reports as described in Section VII of this Consent Order.

B. At the request of U.S. EPA, Respondents shall provide split or duplicate samples to U.S. EPA and/or its authorized representatives, of any samples collected by Respondents pursuant to the implementation of this Consent Order. Respondents shall notify the U.S. EPA Project Coordinator not less than seventy-two (72) hours in advance of any sample collection activitiy.

C. U.S. EPA and/or any U.S. EPA authorized representative shall have access to the Facility and facilities of Respondents' contractors or consultants at all times during normal working hours for the purpose of, inter alia: inspecting records, operating logs, and contracts related to the Site; reviewing the progress of Respondents in carrying out the terms of this Consent Order; conducting such tests as U.S. EPA deems necessary; verifying the data submitted to U.S. EPA by Respondents and; undertaking any other activity consistent with U.S. EPA's authority. Respondents shall permit the representative of U.S. EPA to use any technical means deemed necessary by U.S. EPA including, but not limited to, the use of cameras, sound or video recording devices, or other documentary type

equipment to inspect and copy all records, files, logs, contracts, photographs, documents, and other writings, including all sampling and monitoring data, in any way pertaining to work undertaken pursuant to this Consent Order. All parties with access to the Facility pursuant to this paragraph shall comply with the approved health and safety plan. Nothing herein shall constitute a limit of the inspection authority of U.S. EPA pursuant to federal law.

D. Pursuant to 40 C.F.R. §2.203(b) Respondents may assert business confidentiality claims covering part or all of the information provided or connected with this Consent Order. However, analytical data related to the Site which is required by Respondents, Respondents' contractors and consultants shall not be claimed as confidential and any such claims are hereby waived. If no claim of confidentiality accompanies the information when it is submitted to U.S. EPA, such information may be made available to the public by U.S. EPA without further notice to Respondents.

XIII.

QUALITY ASSURANCE

A. Throughout all sample collection and analysis activities Respondents shall use quality assurance, quality control, and chain of custody procedures in accordance with the QAPP contained in the approved Work Plan as noted in Section VI-B (1) of the Order. Respondents shall consult with U.S. EPA in planning for, and prior to, all sampling and analysis as detailed in the RI/FS Work Plan.

B. In order to provide quality assurance and maintain quality control regarding all samples collected pursuant to this Consent Order, Respondents shall:

1. Provide U.S. EPA personnel and/or U.S. EPA authorized representatives access to all laboratories and personnel utilized by Respondents for sampling and analytical activities conducted pursuant to this Consent Order.

2. Require all laboratories utilized by Respondents for sampling and analyses to perform such analyses according to U.S. EPA methods or other methods deemed satisfactory by U.S. EPA and submit all protocols to be used for analysis to U.S. EPA at least ten (10) working days prior to the commencement of analysis.

3. Require all laboratories utilized by Respondents for sampling analyses to participate in a U.S. EPA quality assurance/quality control program equivalent to that which is followed by U.S. EPA and which is consistent with U.S. EPA document QAMS-005/80. As part of such a program, and upon request by U.S. EPA, such laboratories shall perform analyses of samples provided by U.S. EPA to demonstrate the quality of each laboratory's analytical data.

XIV.

RETENTION AND AVAILABILITY OF RECORDS

Respondents agree to retain and make available to U.S. EPA during the pendency of this Consent Order and for a minimum of six (6) years after

its termination, all records and documents in Respondents' possession, custody or control, including, but not limited to, those in the possession, custody, or control of their divisions, subsidiaries, employees, agents, accountants, contractors, consultants, or attorneys which relate in any way to the Site or to this Consent Order regardless of any document retention policy to the contrary. Nothing herein shall constitute a waiver by Respondents of the attorney-client or work product or other applicable privileges. After this six (6) year period, Respondents shall notify U.S. EPA at least ninety (90) calendar days prior to the destruction of any such records or documents. Upon request by U.S. EPA, Respondents shall immediately make available to U.S. EPA such records or documents. Additionally, if U.S. EPA requests that some or all documents be preserved for a longer period of time, Respondents shall comply with that request or shall send such documents to U.S. EPA for preservation.

XV.

DELAY IN PERFORMANCE

A. Respondents' activities under this Consent Order shall be performed within the time limits set forth herein unless performance is delayed by events which constitute a force majeure. For purposes of this Consent Order, a force majeure event is any event arising from causes beyond Respondents' control. Respondents shall verbally notify U.S. EPA immediately following Respondents' awareness that circumstances constituting a force majeure have occurred or are likely to occur. In addition, Respondents shall notify U.S. EPA in writing as soon as possible, but not later than ten (10) days after Respondents become aware

that circumstances constituting a force majeure have occurred. Such notification shall describe fully the nature of the delay, the reasons therefore, the expected duration of the delay, the actions, if any, which will be taken by Respondents to mitigate further delay, and the schedule by which Respondents' actions in mitigation of the delay will be taken. Respondents shall adopt all reasonable measures to avoid or minimize the possibility of such delays occurring during the performance of the requirements of this Consent Order. Respondents shall have the burden of proving that any failure to comply with any requirement of this Consent Order is excused by this paragraph. Changed economic circumstances or increased costs shall not constitute an event of force majeure.

B. U.S. EPA expressly reserves its right to pursue any other remedies or sanctions which may be available to U.S. EPA by reason of the failure of Respondents to comply with any of the requirements of this Consent Order. Such remedies and sanctions include a suit for statutory penalties as authorized by Section 106 of CERCLA, 42 U.S.C. §9606, a federally-funded response action, and a suit for reimbursement of cost incurred relating to the Site, by the United States.

XVI.

DISPUTE RESOLUTION

A. U.S. EPA and Respondents shall use their best efforts to resolve informally and in good faith all disputes relating to the performance of the RI/FS pursuant to the approved Work Plan. However, if U.S. EPA and Respondents are unable to resolve a dispute in this manner and Respondents object to any U.S. EPA notice of disapproval or decision made

pursuant to this Consent Order, Respondents shall notify U.S. EPA in writing of their objections within three (3) working days of receipt of the notice of disapproval or decision. Any such notice shall set forth the specific points of disagreement, the actions which Respondents consider to be necessary or unnecessary, and the reason(s) for Respondents' objection. If Respondents do not so notify U.S. EPA within this three (3) day period, Respondents shall be deemed to have agreed with the position taken by U.S. EPA.

B. Where notice of objection has been transmitted to U.S. EPA by Respondents, if U.S. EPA concurs with Respondents' position within ten (10) working days of receipt of such notice, this Consent Order will be modified to include any necessary extensions of time, or changes in work. If U.S. EPA does not concur with Respondents' position within this ten (10) day period, the parties agree to meet on at least one occasion at U.S. EPA Region V Headquarters in a good faith attempt to resolve the dispute. U.S. EPA agrees to provide to Respondents a written notice, prior to the meeting, of U.S. EPA's objections and the reasons therefore. Thereafter, U.S. EPA shall resolve the dispute in a manner consistent with the objectives and terms of this Consent Order and SOW prior to approval of the Work Plan, or Work Plan once it is approved.

C. The pendency of any dispute shall not affect the timely performance of the work required by this Consent Order, except that, upon mutual agreement of U.S. EPA, and Respondents, the time period for completion of work affected by such dispute may be extended for a period of time not to

exceed the actual time taken to resolve the dispute in accordance with the procedures specified herein. As specified herein, the agreement will not be unreasonably withheld by either party. All elements of the work required by this Consent Order which are not affected by the dispute shall continue and be completed in accordance with the Work Plan schedule.

D. Upon resolution of any dispute, Respondents shall immediately incorporate such request into the RI/FS Work Plan, and proceed with the work according to the amended Work Plan.

XVII.

RESERVATION OF RIGHTS

A. Notwithstanding compliance with the terms of this Consent Order, including the completion of a U.S. EPA approved RI/FS, the Respondents are not released from liability, if any, for matters beyond the scope of this Consent Order. U.S. EPA reserves all rights and defenses that it may have, including, but not limited to, the right to bring any recovery action for past or future costs not reimbursed by Respondents or any enforcement action pursuant to the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §6901 et seq., or CERCLA, 42 U.S.C. §9601 et seq., and/or any other legal authority, or the right to seek injuctive relief, monetary penalties, and/or punitive damages for any other violation of applicable legal authority, or of this Consent Order.

B. U.S. EPA reserves the right to disapprove of work performed by Respondents, and/or to require that Respondents perform work in addition

to that detailed in the RI/FS Work Plan. In the event that Respondents decline any modified and/or additional work, U.S. EPA reserves the right to undertake any remedial investigation/feasibility study work and/or any response actions deemed necessary by U.S. EPA and consistent with statutory authority. U.S. EPA reserves the right to seek reimbursement from Respondents for any costs incurred by the United States at the Facility.

C. Nothing in this Consent Order shall constitute or be construed as a release or discharge or in any way affect any claim, cause of action, or demand in law or equity against any person, firm, partnership or corporation not a signatory to this Consent Order, from any liability it may have arising out of, or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Facility. U.S. EPA expressly reserves all rights, claims, demands, and causes of action it has against any and all other persons and entities who are not parties to this Consent Order.

D. Notwithstanding compliance with the terms of this Consent Order, Respondents are not released from liability for any actions related to the Facility beyond the terms of this Consent Order.

E. Conveyance of title, easement, or other interest in the Facility shall not release Respondents from liability under RCRA, CERCLA, or other applicable legal authority or from compliance with the requirements of this Consent Order.

XVIII.

REIMBURSEMENT OF COSTS

U.S. EPA reserves the right to decide to bring and subsequently to pursue action against Respondents pursuant to Section 107 of CERCLA for recovery of all response costs, including all response costs incurred prior to the effective date of this Consent Order, and oversight costs incurred by the United States related to this Consent Order and not reimbursed by Respondents, as well as any other past and future costs incurred by the United States in connection with response activities conducted pursuant to CERCLA at the Auto Ion Facility.

XIX.

OTHER CLAIMS

A. Respondents agree to indemnify and save and hold the United States Government, its agencies, departments, agents, and employees, harmless from any and all claims or causes of action arising from, or on account of, acts or omissions of Respondents, their officers, employees, contractors, consultants, receivers, trustees, agents, or assignees, in carrying out any activities pursuant to this Consent Order.

B. U.S. EPA is not a party to and does not assume any liability for any contract entered into by Respondents in carrying out the requirements of this Consent Order.

C. Respondents shall not assert, and hereby waive any claims under any provision of law against the Hazardous Substances Response Trust Fund

related to money paid, work performed, or any other activity conducted pursuant to the requirements of this Consent Order.

D. This Consent Order does not constitute any decision on authorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. §9611(a)(2).

XX.

LIABILITY INSURANCE

Within ten (10) working days of the effective date of this Consent Order, Respondents shall submit to U.S. EPA current certificates of any liability insurance which Respondents may carry for liability arising out of the acts or omissions of Respondents or Respondents' consultants, contractors or subcontractors, or other representatives in carrying out the requirements of this Consent Order.

XXI.

CERTIFICATION

Within thirty (30) days of completion of the actions required under this Consent Order, the Respondents shall submit written notice to U.S. EPA of their completion of the work. Within forty five (45) working days of Respondents' submittal of the notice of completion, U.S. EPA shall review such notice and the work actually performed at the Facility to determine whether it has been performed completely and consistently with the terms of this Consent Order. In the event that U.S. EPA is satisfied that such work has been so performed, it shall issue a Certificate of Completion, which shall not be unreasonably withheld. If U.S. EPA decides that some or all of the work has

not been completed properly, it may so notify Respondents in writing, specifying the deficiencies as well as any additional actions which it believes should be taken. Upon issuance of the Certificate of Completion, the performance of the work required under this Consent Order will be deemed by the U.S. EPA to have been completed in a manner consistent with the requirements of the NCP.

XXII.

COVENANT NOT TO SUE

A. From the effective date of this Consent Order, U.S. EPA agrees to seek no administrative or judicial proceedings or relief against Respondents regarding work performed to the satisfaction of U.S. EPA under this Consent Order, as evidenced on completion thereof by a Certificate of Completion issued by U.S. EPA. U.S. EPA expressly reserves the right to take any action, judicial or administrative, against Respondents and any other responsible parties to seek enforcement of the terms of this Consent Order or for penalties, for any work required by the Consent Order that is not satisfactorily performed. This Consent Order shall not be construed to limit the right and authority of U.S. EPA to initiate any action, whether judicial or administrative, against any person, including Respondents, regarding conditions at the Site that may arise or become apparent after the effective date of this Consent Order, or for the recovery of any part of future costs incurred by U.S. EPA during any actions or activities. The parties agree that the actions required under this Consent Order constitute full performance, when satisfactorily completed, of the obligations of Respondents that were the basis of this

Consent Order, arising under the authority of Section 106 of CERCLA. When satisfactorily completed, the parties agree that the actions required of Respondents under this Consent Order will be consistent with the NCP.

B. Respondents agree that the successful completion of the Work Plan does not represent full satisfaction of all claims for relief to which the United States may be entitled, at law or equity, against persons or entities other than Respondents and arising out of or relating to the transportation, handling, treatment, storage, disposal, presence, or actual or threatened release of any materials at, to, or from the Facility. Nothing herein contained shall bar or impair the right of Respondents to seek contribution from, or to assert any other claim against, any person or entity, it being contemplated and intended that Respondents will assert such claims. To this end, nothing herein is intended to release, compromise or diminish any claims, causes of actions, or demands in law or equity against any person or entity not a party to this Consent Order for any liability it may have arising out of or relating in any way to the transportation, handling, treatment, storage, disposal, presence, or actual or threatened releases of any materials to, at, from or near the Facility.

C. The U.S. EPA agrees to consider, in its sole discretion, the possibility of first seeking to satisfy any judgment obtained in litigation relative to the Auto-Ion Facility under CERCLA, other than a judgment against Respondents for violations of this Consent Order or for treble recovery

under 42 U.S.C. 9607(c)(3) entered against any of the Respondents hereto, from the assets of responsible parties not signatories to this Consent Order. By agreeing to consider this possibility, the U.S. EPA is in no wise committing itself in advance to seek such satisfaction first against such non-signatories.

XXIII.

PUBLIC COMMENT AND EFFECTIVE DATE

A. U.S. EPA shall make the Consent Order available to the public for review and shall accept comment on the Consent Order for, at a minimum, thirty (30) calendar days, pursuant to U.S. EPA's Community Relations Policy.

B. Based upon a review of the comments received from the public during this thirty (30) day period, U.S. EPA shall determine either that:

1. The Consent Order be made effective in its original form, in which case Respondents shall be so notified and the effective date of this Consent Order shall be the date of notice to Respondents, or,

2. The Consent Order be modified in writing as deemed necessary by U.S. EPA to reflect public comment. If Respondents agree to U.S. EPA's modifications, the Consent Order shall be so modified, and the effective date of this Consent Order shall be the date of notice to Respondents. If Respondents disagree with U.S.

EPA's modifications, the Consent Order will be withdrawn by U.S. EPA.

C. Upon U.S. EPA approval of a Feasibility Study Final Report, U.S. EPA shall make both the Remedial Investigation Final Report and the Feasibility Study Final Report available to the public for review and comment for, at a minimum, twenty-one (21) working days, pursuant to U.S. EPA's Community Relations Policy. Following the public review and comment period, U.S. EPA shall notify Respondents which remedial action alternative is to be implemented at the Facility.

XXIV.

SUBSEQUENT MODIFICATION

A. Except as expressly provided herein with regard to modification of plans submitted by Respondents and as required under Sections VI and XVI of this Consent Order, this Consent Order may only be amended by mutual agreement of U.S. EPA and Respondents. Any such amendments shall be in writing and shall have as the effective date, that date on which the amendment is signed by U.S. EPA.

B. Any reports, plans, specifications, schedules, and attachments required by this Consent Order are, upon written approval by U.S. EPA, incorporated into this Consent Order. Any noncompliance with such approved reports, plans, specifications, schedules, and attachments shall be considered noncompliance with this Consent Order and shall be grounds for administrative and/or, judicial enforcement action within the U.S. EPA's sole discretion.

XXV.

SEVERABILITY

If any provision or authority of this Consent Order or the application of this Consent Order to any party or circumstance is held by any judicial or administrative authority to be invalid, the application of such provision to other parties or circumstances and the remainder of the Consent Order shall remain in force and shall not be affected thereby.

XXVI.

NOTICES

All notices required under the terms of this Consent Order shall be directed to:

A. Frank Rollins, Remedial Project Manager
U.S. Environmental Protection Agency - Region V
Hazardous Waste Enforcement Branch
CERCLA Enforcement Section (5HE-12)
230 South Dearborn Street
Chicago, Illinois 60604

B. Jonathan McPhee, Assistant Regional Counsel
U.S. Environmental Protection Agency - Region V
Office of Regional Counsel (5CS-16)
230 South Dearborn Street
Chicago, Illinois 60604

C. Auto-Ion Steering Committee
c/o Sidney Margolis, Esq.
Winston & Strawn
Suite 5000
One First National Plaza
Chicago, Illinois 60603

D. Auto-Ion Steering Committee
c/o Sheila C. Marsh, Esq.
Brunswick Corporation
One Brunswick Plaza
Skokie, Illinois 60077

E. Auto-Ion Steering Committee
c/o Richard T. Sargeant, Esq.
Eastman & Smith
800 United Savings Building
Toledo, Ohio 43604

XXVII.

NOTICE TO THE STATE

The State of Michigan has been notified of this action pursuant to requirements of Section 106(a) of CERCLA, 42 U.S.C. §9606(a).

XXVIII.

TERMINATION AND SATISFACTION

The provisions of this Consent Order, except for those found at Section XIV relating to retention and availability of information, shall be deemed satisfied upon receipt by Respondents of written notice from U.S. EPA that Respondents have demonstrated that all of the terms of this Consent Order, including any additional work which U.S. EPA may determine to be necessary, has been completed to the satisfaction of U.S. EPA.

AGREED AND ORDERED:

BY: _____ 6/18/86.
U.S. Environmental Protection Agency — Date

Effective Date: AUG 27 1986

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

AMERACE CORPORATION

BY: Douglas F. Bauer

Douglas F. Bauer
Corporate Secretary, Respondent

May 15, 1986
Date

Signature Page to Auto-Ion
Administrative Order By Consent
(A 3___ page document containing Sections I - XXVII)

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: Brunswick Corporation, Respondent

May 20, 1986
Date

Title Vice President

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: Buckeye Process Co. June 26TH 1986
Date

_____, Respondent

President
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

JUN 26 1986

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: _____, for

CLARK EQUIPMENT COMPANY, Respondent

May 19, 1986
Date

VICE PRESIDENT AND GENERAL COUNSEL
Title

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: _____ May 21 1986
Date

CONTRACTORS UNITED, INC., Respondent

PRESIDENT
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: ________________ for
Corning Glass Works, Respondent

6/16, 1986
Date

Assistant Counsel
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 3__ page document containing Sections I - XXVII)

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: Clement Revetti
for Dana Corp, Respondent

May 21, 1986
Date

Legal Counsel
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: _____ 5/20/86
Date

Faultless Caster Corp., Respondent

One of its attorneys
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

GENERAL MOTORS CORPORATION 5/21/86

BY: _____ _____
Date

Leonard F. Chama, Respondent
LEONARD F CHAMA

SENIOR COUNSEL
Title

ORIGINAL SGN

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: Leonard F Charla

5/21/81

Date

GENERAL MOTORS CORPORATION, Respondent

LEONARD F CHARLA
SENIOR COUNSEL

Title

Signature Page to Auto-Ion
Administrative Order By Consent
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AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

GILBERT PLATING AND BUMPER EXCHANGE, INC.

BY: James Gilbert

May 20, 1986
Date

_____, Respondent

President

Title
President

Signature Page to Auto-Ion
Administrative Order By Consent
(A 3___ page document containing Sections I - XXVII)

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: Joseph J. Baglinich. 05/20/86

Date

HARMAN AUTOMOTIVE, INC., Respondent

Vice President, Finance

Title

Signature Page to Auto-Ion
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AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: _____ June 2, 1986
Date

Hoover Universal, Inc., Respondent

Assistant Secretary
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: John P Kennedy

Johnson Controls, Inc., Respondent

May 19, 1986
Date

Assistant Secretary
Title

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(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: Craig D. Davis _____ 5/22/86
Date

Kawneer, Inc. , Respondent

Vice President
Title

Signature Page to Auto-Ion
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(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: KTS Industries, Inc., May 14, 1986
Robert M. Comber, Respondent Date

PRESIDENT
Title

Signature Page to Auto-Ion
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AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: C. J. Afendulis

Muskegon Piston Ring Co., Respondent

May 20, 1986
Date

Vice President, Finance
Title

Signature Page to Auto-Ion
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AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

SHAKESPEARE COMPANY

BY: Monroe Lindler 5-20-86
Date

Monroe Lindler, Respondent

Plant Manager
Title

Signature Page to Auto-Ion
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(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:
SHELLER-GLOBE CORPORATION

BY: _____ May 21, 1986
Date

John F. McCuen, Respondent

Vice President General Counsel & Secretary
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: _____ May 20, 1986
Date

STANADYNE, INC., Respondent

Secretary and General Counsel
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: William R. Cook

May 22, 1986
Date

Sundstrand Heat Transfer, Inc. Respondent

Assistant Secretary
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: _____ May 21, 1986
United Technologies Date
Automotive, Inc., Respondent

Vice President - Finance
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: Douglas P. Hamilton

United Technologies Automotive, Inc., Respondent

May 21, 1986
Date

Vice President - Finance
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED:

BY: _____ 5/22/86
Date

Whirlpool Corporation, Respondent

Division Vice President
Title

Signature Page to Auto-Ion
Administrative Order By Consent
(A 34 page document containing Sections I - XXVIII

AUTO-ION ADMINISTRATIVE ORDER BY CONSENT

AGREED AND APPROVED: WICKES MANUFACTURING COMPANY
on behalf of Angle Steel

BY: Edward B. Hirschberg May 19, 1986
Date

Edward B. Hirschberg, Respondent

Vice President
Title

ATTACHMENT I

AUTO-ION

REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

STATEMENT OF WORK

PURPOSE

The purpose of this remedial investigation is to determine the nature and extent of the problem that may exist at the Auto-Ion Site and to gather all necessary data to support the feasibility study. The purpose of this feasibility study is to develop and evaluate remedial alternatives with cost-effective remedial actions identified. The Engineer will furnish all personnel, materials, and services necessary for, or incidental to, performing the remedial investigation and feasibility study at the Auto-Ion Site, except as otherwise specified herein.

SCOPE

The remedial investigation consists of five tasks[1]:

Task 1 - Description of Current Situation
Task 2 - Plans and Management
Task 3 - Site Investigation
Task 4 - Site Investigation Analysis
Task 5 - Reports

The feasibility study consists of seven tasks:

Task 6 - Description of Proposed Response
Task 7 - Preliminary Remedial Technologies
Task 8 - Development of Alternatives
Task 9 - Initial Screening of Alternatives
Task 10 - Evaluation of the Alternatives
Task 11 - Preliminary Report
Task 12 - Final Report

A work plan that includes a detailed technical approach, personnel requirements, and schedules will be submitted for the proposed remedial investigation and feasibility study.

TASK 1 - DESCRIPTION OF CURRENT SITUATION

Describe the background information pertinent to the site and its potential problems and outline the purpose for remedial investigation at the site.

This task may be conducted concurrently with Task 2, development of the work plan. It shall include the following:

---

1 The Remedial Investigation guidance should be consulted for additional information on the tasks listed below.

a. Site Background

Prepare a summary of the Regional location, pertinent area boundary features, and general site physiography, hydrology, and geology.

Define the total area of the site and the general nature of the potential problem, including pertinent history relative to the use of the site for hazardous waste disposal.

b. Nature and Extent of Problem

Prepare a summary of the actual and potential on-site and off-site health and environmental effects. This may include, but is not limited to, the types, physical state, and amounts of the hazardous substances; the existence and conditions of contaminated soils, sediments, surface water, and groundwater, affected, media and pathways of exposure; contaminated releases such as leachate or runoff; and any human exposure. Emphasis should be placed on describing the threat or potential threat to public health and the environment.

c. History of Response Actions

Prepare a summary of any previous response actions conducted by either local, MDNR, Federal, or private parties including the site inspection and other technical reports, and their results. This summary should address any enforcement activities undertaken to identify responsible parties, compel private cleanup, and recover costs. A list of reference documents and their locations shall be included. The scope of remedial investigation should be developed to address the problems and questions that have resulted from previous work at the site.

d. Site Visit

Conduct an initial site visit to become familiar with site topography access routes, and proximity of receptors to possible contamination and collect data for preparation of the site safety plan. The visit should be used to verify the site information developed in this Task.

e. Define Boundary Conditions

Establish site boundary conditions to limit the areas of site investigations, this boundary shall not limit the sampling plan developed for the adjacent Kalamazoo River. The boundary conditions should be set so that subsequent investigations will cover the contaminated media in sufficient detail to support the feasibility study). The boundary conditions may also be used to identify boundaries for site access control and site

security. Repair or replace any damaged fencing existing on site to ensure proper site security.

f. Site Map

Prepare a site map showing all wetlands, floodplains, water features, drainage patterns, above and below ground utilities, filled areas, supply wells, soil borings, groundwater monitoring wells, man-made features, tanks, buildings, paved areas, easements, rights-of-way, and other features. The site map and all topographical surveys should be of sufficient detail and accuracy to locate and report all existing and future work performed at the site. A permanent on-site benchmark shall be established for both vertical and horizontal control, and all elevations shall be related to U.S. Geological Survey Datum. The plan sheet shall also include a 100 foot survey grid and north arrow.

g. Site Office

If agreed to by U.S. EPA, establish a temporary site office to support site work.

TASK 2 - PLANS AND MANANGEMENT

Prepare all necessary plans for the remedial investigation. The work plan should include a detailed discussion of the technical approach, personnel requirements, and schedules, as well as the following:

a. Sampling Plan and Quality Assurance Project Plan

Prepare a Sampling Plan to address all field activities to obtain additional site data. The plan will contain a statement of sampling objectives; specification of equipment, analyses of interest, sample types, and sample locations and frequency; and schedule. Consider use of field screening techniques to screen out samples that do not require off-site laboratory analysis. The plan will also include a Quality Assurance Project Plan consistent with guidance documents provided by U.S. EPA. The plan must address all levels of the investigation as well as all types of investigations conducted (e.g., waste characterization, hydrogeologic, soils and sediments, air and surface water). The plan will identify remedial technologies and associated data that may be needed to evaluate alternatives for the feasibility study.

b. Health and Safety Plan

Prepare a Health and Safety Plan to address hazards that the investigation activities may present to the investigation team and to the surrounding community. The plan should address all applicable regulatory requirements and detail personnel responsibilities, protective equipment, procedures and protocols, decontamination, training, and medical surveillance. The plan should identify problems or hazards that may be encountered and their solutions. Procedures for protecting third parties, such as visitors or the surrounding community, will also be provided.

c. Data Management Plan

Develop and initiate a Data Management Plan to document and track investigation data and results. This plan should identify and set up laboratory and data documentation materials and procedures, project file requirements, and project-related progress and financial reporting procedures and documents.

TASK 3 - SITE INVESTIGATION

Conduct those investigations necessary to characterize the site and its actual or potential hazard to public health and the environment. The investigations should result in data of adequate technical content to support the development and evaluation of remedial alternatives during the feasibility study. Investigation activities will focus on problem definition and data to support the screening of remedial technologies, alternative development and screening, and detailed evaluation of alternatives.

The site investigation activities will follow the plans set forth in Task 2. All sample analyses will be conducted at laboratories following U.S. EPA protocols or their equivalents. Strict chain-of-custody procedures will be followed and all samples will be located on the site map [and grid system] established under Tasks 1 and 2.

a. Waste Characterization

Conduct a sampling and analysis program to characterize all organic and inorganic materials of interest which may have been located at the site. These materials should include those stored above or below ground in tanks, drums, lagoons, piles, or other structures.

b. Hydrogeologic Investigation

Conduct a program to determine the presence and potential extent of ground water contamination. Identify specific aquifers to be studied. Efforts should begin with a survey of previous hydrogeologic studies and other existing data. The survey should address the degree of hazard, the mobility of pollutants considered (from Waste Characterization), the soils' attenuation capacity and mechanisms, discharge/recharge areas, regional flow directions and quality, and effects of any pumping alternatives that are developed, if applicable. Such information may be available from the USGS, the Soil Conservation Service, and local well drillers. The contractor will collect groundwater samples to determine if there is contamination from organic or inorganic materials of interest. An accompaning sampling program should determine the horizontal and vertical distribution of contaminants, if present, and predict the long-term disposition of contaminants.

Prepare a water table map based on stabilized water level readings. The existing site plan from task 1 can be used as a base for this map.

c. Soil and Sediments Investigation

Conduct a program to determine the location and extent of contamination of surface and subsurface soils and sediments, including sediments of the Kalamazoo River adjacent to the site. This will consist of collecting and analyzing soils and sediments to determine concentrations of organic and inorganic materials of interest. All soil and sediment sample results shall be in units of mg/kg on a dry weight basis. The contractor shall perform soil borings to adequately define the soil, bedrock and groundwater conditions at the site.

Where soil conditions permit, soil samples shall be collected utilizing standard undisturbed soil sampling techniques. Samples shall not be composited for testing purposes. Soil samples shall be collected from each soil layer encountered and at a maximum 5-foot intervals. All soil samples should be described. Boring logs shall be recorded for all borings. Each log shall include soil and rock descriptions and method of sampling, sample depth, date of boring, water level measurements and dates, and soil test data. All elevations shall be corrected USGS datum.

For each major soil layer encountered, a soil sample shall be analyzed for grain size distribution (mechanical and/or hydrometer as appropriate to the soil type) and classified according to the unified soil classification system. The horizontal and vertical extent of contaminated soils and sediments should be determined. Information on local background levels, degree of hazard, location of samples, techniques utilized, and methods of analysis should be included.

d. Surface Water Investigation

Conduct a program to determine the extent of contamination of surface waters of the Kalamazoo River. This will consist of collecting and analyzing of surface water to determine the concentrations of organic or inorganic materials of interest. This process may overlap with the soils and sediments investigation; data from river sediments sampled may be relevant to surface water quality. A survey of existing data on surface water flow and quantity and quality may be a useful first step, particularly information on local background levels, location and frequency of samples, sampling techniques, and method of analysis.

e. Monitoring wells and Piezometer Nests

The contractor shall install monitoring wells; and well nests (piezometers) if groundwater contamination is present. The construction of each well shall be recorded on logs. Well log information shall include the elevations of the pipe top, ground surface, bottom of boring, well seals and screened interval, and a description of the well construction materials.

f. Air Investigation

Conduct a program to determine the extent of atmospheric contamination. The program should address the potential of substances (identified through Waste Characterization) to enter the atmosphere, local wind patterns, and the degree of hazard.

g. Geologic Composite

Incorporating the results of other activities undertaken in Task 3, provide an adequate set of geologic cross-sections passing through the borings, that illustrate existing topography; include all soil borings, soil classifications and other properties, interpreted soil stratigraphy, bedrock, monitoring wells, and stabilized water level readings. Adequacy

will depend on subsurface conditions and interpretation by the U.S. EPA project coordinator.

TASK 4 - SITE INVESTIGATION ANALYSIS

Prepare a thorough analysis and summary of all site investigations and their results. The objective of this task will be to ensure that the investigation data are sufficient in quality (e.g., QA/QC procedures have been followed) and quantity to support the feasibility study.

The results and data from all site investigations must be organized and presented logically so that the relationships between site investigations for each medium are apparent. Analyze all site investigation data and develop a summary of the type and extent of contamination at the site. The summary should describe the quantities and concentrations of specific contaminants at the site and ambient levels surrounding the site. Describe the number, locations, and types of nearby populations and activities and pathways that may result in an actual or potential threat to public health, welfare, or the environment. Provide quantitative information regards to populations at risk, and the methods used in the quantification.

TASK 5 - REPORTS

a. Progress Recording Requirements

Monthly reports shall be prepared by the Engineer to describe the technical progress of the project. These reports should discuss the following items:

1. Identification of site and activity
2. Status of work at the site and progress to date
3. Percentage of completion and schedule status
4. Difficulties encountered during the reporting period
5. Actions being taken to rectify problems
6. Activities planned for the next month
7. Changes in personnel

The monthly progress report will list target and actual completion dates for each element of activity, including project completion, and will provide an explanation of any deviation from the milestones in the work plan. Submit 5 copies to

U.S. EPA.

B. Preliminary Report

Prepare a preliminary report covering the remedial investigation and submit 5 copies to U.S. EPA. The report shall include the results of Task 1 through 4, and should include additional information in appendices. The report shall be structured to enable the reader to cross-reference with ease.

C. Final Report

Prepare a final report covering the remedial investigation, this report is to include any modifications and/or additions indicated by U.S. EPA on the preliminary report. Submit 5 copies to U.S. EPA.

TASK 6 - DESCRIPTION OF PROPOSED RESPONSE

Information on the site background, the nature and extent of the problem, and previous response activities presented in Task 1 of the remedial investigation may be incorporated by reference. Any changes to the original project scope described in the Task 1 description should be discussed and justified based on results of the remedial investigation.

Following this summary of the current situation, a site-specific statement of purpose for the response, based on the results of the remedial investigation, should be presented. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by remedial alternatives.

TASK 7 - PRELIMINARY REMEDIAL TECHNOLOGIES

Based on the site-specific problems and statement of purpose identified in Task 6, develop a master list of potentially feasible technologies. These technologies will include both on-site and off-site remedies, depending on site problems. The master list will be screened based on site conditions, waste characteristics, and technical requirements, to eliminate or modify those technologies that may prove extremely difficult to implement, will require unreasonable time periods, or will rely on insufficiently developed technology. [The results of this task may be requested as a separate memorandum (Remedial Options Negotiation Document) by the U.S. EPA.]

TASK 8 - DEVELOPMENT OF ALTERNATIVES

Based on the results of the remedial investigation and consideration of preliminary remedial technologies (Task 7), develop a limited number of alternatives for source control or off-site remedial actions, or both, on the basis of objectives established for the response.

a. Establishment of Remedial Response Objectives

Establish site-specific objectives for the response. These objectives will be based on public health and environmental concerns, the description of the current situation (from Task 1), information gathered during the remedial investigation, section 300.68 of the National Contingency Plan (NCP), U.S. EPA's interim guidance, and the requirements of any other applicable U.S. EPA, Federal, and MDNR environmental standards, guidance, and advisories as defined under U.S. EPA's Revised CERCLA Enforcement Policy Compendium May 9, 1985). Objectives for source control measures should be developed to prevent or significantly minimize migration of contamination from the site. Objectives for management of migration measures should prevent or minimize impacts of contamination that has migrated from the site. Preliminary cleanup objectives will be developed in consultation with U.S. EPA.

b. Identification of Remedial Alternatives

Develop alternatives to incorporate remedial technologies (from Task 7), response objectives, and other appropriate considerations into a comprehensive, site-specific approach. Alternatives developed should include the following (as appropriate):

- Alternatives for off-site treatment or disposal, as appropriate
- Alternatives which attain applicable and/or relevant Federal public health or environmental standards
- Alternatives which exceed applicable and/or relevant public health or environmental standards
- Alternatives which do not attain applicable and/or relevant public health or environmental standards but will reduce the likelihood of present or future threat from the hazardous substances. This must include an

alternative which closely approaches the level of protection provided by the applicable or relevant standards

- No Action Alternative

There may be overlap among the alternatives developed. Further, alternatives outside of these categories may also be developed, such as non-cleanup alternative (e.g., alternative water supply, relocation). The alternatives shall be developed in close consultation with U.S. EPA. Document the rationale for excluding any technologies identified in Task 7 in the development of alternatives.

TASK 9 - INITIAL SCREENING OF ALTERNATIVES

The alternatives developed in Task 8 will be screened by the Engineer to eliminate those that are clearly infeasible or inappropriate, prior to undertaking detailed evaluations of the remaining alternatives.

Considerations to be Used in Initial Screening

Three broad considerations must be used as a basis for the initial screening: cost, public health, and the environment. More specifically, the following factors must be considered:

1. Environmental Protection. Only those alternatives that satisfy the response objectives and contribute substantially to the protection of public health, welfare, or the environment will be considered further. Source control alternatives will achieve adequate control of source materials. Management of migration alternatives will minimize or mitigate the threat of harm to public health, welfare, or the environment.

2. Environmental Effects. Alternatives posing significant adverse environmental effects will be excluded.

3. Technical Feasibility. Technologies that may prove extremely difficult to implement, will not achieve the remedial objectives in a reasonable time period, or will rely upon unproven technology should be modified or eliminated.

4. Cost. An alternative whose cost far exceeds that of other alternatives will usually be eliminated unless other significant benefits may also be

realized. Total costs will include the cost of implementing the alternatives and the cost of operation and maintenance.

The cost screening will be conducted only after the environmental and public health screenings have been performed.

TASK 10 - EVALUATION OF THE ALTERNATIVES

Evaluate the cost-effectiveness of alternative remedies that pass through the initial screening in Task 9. Alternative evaluation will be preceeded by detailed development of the remaining alternatives.

a. Technical Analysis

The Technical Analysis will, at a minimum:

1. Describe appropriate treatment, storage, and disposal technologies.

2. Discuss how the alternative does (or does not) comply with specific requirements of other environmental programs. When an alternative does not comply, discuss how the alternative prevents or minimizes the migration of wastes and public health or environmental impacts and describe special design needs that could be implemented to achieve compliance.

3. Outline operation, maintenance, and monitoring requirements of the remedy.

4. Identify and review potential off-site facilities to ensure compliance with applicable RCRA and other U.S. EPA environmental program requirements, both current and proposed. Potential disposal facilities should be evaluated to determine whether off-site management of site wastes could result in a potential for a future release from the disposal facility.

5. Identify temporary storage requirements, off-site disposal needs, and transportation plans.

6. Describe whether the alternative results in permanent treatment or destruction of the wastes, and, if not, the potential for future release to the environment.

7. Outline safety requirements for remedial implementation (including both on-site and off-site health and safety considerations).

8. Describe how the alternative could be phased into individual operable units. The description should include a discussion of how various operable units of the total remedy could be implemented individually or in groups, resulting in a significant inprovement to the environment or savings in cost.

9. Describe how the alternative could be segmented into areas to allow implementation in differing phases.

10. Describe special engineering requirements of the remedy or site preparation considerations.

b. Environmental Analysis

Perform an Environmental Assessment (EA) for each alternative. The EA should focus on the site problems and pathways of contamination actually addressed by each alternative. The EA for each alternative will include, at a minimum, an evaluation of beneficial effects of the response/ adverse effects of the response, and an analysis of measures to mitigate adverse effects. The no-action alternative will be fully evaluated to describe the current site situation and anticipated environmental conditions if no actions are taken. The no-action alternative will serve as the baseline for the analysis.

c. Public Health Analysis

Each alternative will be assessed in terms of the extent to which it mitigates long-term exposure to any residual contamination and protects public health both during and after completion of the remedial action. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected population. The effect of "no action" should be described in terms of short-term effects (e.g., lagoon failure), long-term exposure to hazardous substances, and resulting public health impacts. Each remedial alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. The relative reduction in public health impacts for each alternative will be compared to the no-action level. For management of migration measures, the relative reduction in impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to U.S. EPA. For source control measures or when criteria, standards, or guidelines are

not available, the comparison should be based on the relative effectiveness of technologies. The no-action alternative will serve as the baseline for the analysis.

d. Institutional Analysis

Each alternative will be evaluated based on relevant institutional needs. Specifically, regulatory requirements, permits, community relations, and participating agency coordination will be assessed.

e. Cost Analysis

Evaluate the cost of each feasible remedial action alternative (and for each phase or segment of the alternative). The cost will be presented as a present worth cost and will include the total cost of implementing the alternative and the annual operating and maintenance costs. Both monetary costs and associated non-monetary costs will be included. A distribution of costs over time will be provided.

f. Evaluation of Cost-Effective Alternatives

Alternatives will be compared using technical, environmental, and economic criteria. At a minimum, the following areas will be used to compare alternatives:

1. Present Worth of Total Costs. The net present value of capital and operating and maintenance costs also must be presented.

2. Health Information. For the no-action alternative, U.S. EPA prefers a quantitative statement including a range estimate of maximum individual risks. Where quantification is not possible, a qualitative analysis may suffice. For source control options, a quantitative risk assessment is not required. For management of migration measures, present a quantitative risk assessment including a range estimate of maximum individual risks.

3. Environmental Effects. Only the most important effects or impacts should be summarized. Reference can be made to supplemental information arrayed in a seperate table, if necessary.

4. Technical Aspects of the Remedial Alternatives. The technical aspects of each remedial alternative relative to the others should be clearly delineated. Such information generally will be based on the professional opinion of the Engineer regarding the site and the technologies comprising the remedial alternative.

5. Information on the Extent to Which Remedial Alternatives Meet the Technical Requirements and Environmental Standards of Applicable Environmental Regulations. This information should be arrayed so that differences in how remedial alternatives satisfy such standards are readily apparent. The general types of standards that may be applicable at the site include:

   a. RCRA design and operating standards; and

   b. Drinking water standards and criteria.

6. Information on Community Effects. The type of information that should be provided is the extent to which implementation of a remedial alternative disrupts the community (e.g., traffic, temporary health risks, and relocation).

7. Other Factors. This category of information would include such things as institutional factors that may inhibit implementing a remedial alternative and any other site-specific factors identified in the course of the detailed analysis that may influence which alternative is eventually selected.

TASK 11 - PRELIMINARY REPORT

Prepare a preliminary report presenting the results of Tasks 6 through 10. Submit 5 copies to the U.S. EPA.

TASK 12 - FINAL REPORT

Prepare a final report for submission to U.S. EPA. The report will include the results of Tasks 6 through 10, and should include any supplemental information in appendices. Submit 5 copies to the U.S. EPA.